APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,769	01/13/2000	Besma Kraiem	450117-02372	7444

20999   7590   09/30/2003

FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER
MUNOZ, GUILLERMO

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 09/30/2003   1)

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 09/482,769	**Applicant(s)** KRAIEM, BESMA
	Examiner Guillermo Munoz	**Art Unit** 2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _amendment filed July 14, 2003_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-15_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4,7 and 10_ is/are rejected.

7)☒ Claim(s) _5,6,8,9 and 11-15_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

      a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-4, 7, and 10 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over DVB Document A037 "Implementation Guideline For DVB-T Transmission Aspects", in view of Seki et al. (U.S. Patent Number 5,771,224), and Berrou et al. "Digital Television: Hierarchical Channel Coding Using Turbo-Codes".

In regards to claims 1 and 10; DVB-T teaches a modulation method and radio communication system wherein:

- "As mentioned above, every subcarrier is modulated by a modulation symbol. QPSK, 16-QAM and 64-QAM are used as modulation methods, e.g. 2,4, or 6 bits pr modulation symbol. The bits are assigned to the particular points in the phase space according to the so called Gray-code mapping"(section 1.1, page 8, 7th paragraph).

- "As described above, three different modulation schemes (signals constellations) are available in the DVB-T specification –QPSK, 16-QAM, and 64-QAM. Any of these signal constellations can be combined with any of five different code rates: ½, 2/3, ¾, 5/6, 7/8"(section 1.1.1, page 14, 1st paragraph).

DVB Document A037 teaches that every subcarrier is modulated using a combination of QPSK, 16-QAM or 64-QAM symbols. However, DVB Document A037 does not specifically call for 16-QAM symbols being transmitted with QPSK symbols on a single signal.

Berrou et al., teaches an implementation of the DVB-T system wherein:

- "It is hence interesting to provide a signal that conveys two types of information" (page 1255, section abstract, paragraph 1).

- "The 64QAM is thus regarded as the sum of a QPSK and a 16QAM. However, it remains a regular constellation: this is an important difference between this coding-and-mapping scheme and other systems it could be compared to" (page 1256, section 2.1).

Therefore, it would have been obvious to one having ordinary skill in the art to combine the QPSK and QAM symbols of the DVB-T system into a single subcarrier signal in view of Berrou et al. for the purpose of improving the efficiency of the hierarchical channel coding scheme.

Furthermore, DVB Document A037 teaches that every subcarrier is modulated using a combination of QPSK, 16-QAM or 64-QAM symbols. However, DVB Document A037 does not specifically call for coherently modulating 16-QAM symbols and non-coherently modulating QPSK symbols.

Seki et al teaches another method of modulating and demodulating a signal having QPSK

and QAM symbols wherein:

- "In the differential QPSK method, data is made for transmission to correspond to a phase

   difference between symbols. At the receiving end, data can be demodulated by the

   (differential detection). Thus, there is an advantage in that a demodulator used is simple

   in construction as compared to that for the coherent detection system" (col.1, line 27-32).

- "On the other hand, the use of the OFDM modulation system for digital television

   broadcasting needs a high transmission rate. In order to increase the transmission rate,

   the use of a multi-valued modulation method for each carrier is required. With digital

   television broadcasting using the OFDM modulation system, a multi-valued QAM

   method is used as a modulation method for each carrier. With the multi-valued QAM

   system, however, unlike the above-described differential QPSK method, it is impossible

   to transmit data in the form of a phase difference between symbols and, at the receiving

   end, to demodulate data by the differential detection. In order to demodulate multi-

   valued QAM demodulated signals, seeking the amplitude and phase of each carrier at the

   receiving end is required. For the multi-valued QAM system, therefore, a method has

   been proposed by which, at the transmitting end, reference symbols whose amplitude and

   phase are already known are transmitted periodically and, at the receiving end, the

   reference symbols are used as the reference amplitude and phase in demodulating multi-

   valued QAM symbols" (col.1, lines 41-60).

Therefore, it would have been obvious to one having ordinary skill in the art to modulate

the hierarchical high priority QPSK stream of DVB-T using a non-coherent modulation

circuit and to modulate the hierarchical low priority QAM stream of DVB-T using a coherent

modulation circuit in view of Seki et al for the purpose of implementing the modulation of

the hierarchical signal in manners well known in the art.

In regards to claim 2; as applied to claim 1 above, Seki et al teaches another method of

modulating and demodulating a signal having QPSK and QAM symbols wherein:

- "For the multi-valued QAM system, therefore, a method has been proposed by which, at

   the transmitting end, reference symbols whose amplitude and phase are already known

   are transmitted periodically and, at the receiving end, the reference symbols are used as

   the reference amplitude and phase in demodulating multi-valued QAM symbols" (col.1,

   lines 55-60).

The reference symbols anticipate claimed coherently transmitted and corrected

amplitudes in claim 2.

In regards to claim 3; as applied to claim 2 above, Seki et al teaches another method of

modulating and demodulating a signal having QPSK and QAM symbols wherein:

- "a multi-valued QAM method is used as a modulation method for each carrier"

   (col.1, lines 46-47).

The multi-valued QAM method used for each carrier anticipates claimed each of the

Amplitude distortions due to frequency selectivity are separately corrected per subcarrier in

claim 3.

In regards to claim 4; as applied to claim 1 above, Seki et al teaches another method of

modulating and demodulating a signal having QPSK and QAM symbols wherein:

- "a multi-valued QAM" (col.1, line 46), anticipating claimed multi-valued QAM of claim 4.

In regards to claim 7; as applied to claim 4 above, Seki et al teaches another method of modulating and demodulating a signal having QPSK and QAM symbols wherein:

- "Effective data other than the reference data is transmitted as 16 QAM symbols" (col.6, lines 31-32), anticipating claimed 16 QAM symbol of claim 7.

Claim Objections

Claims 5, 6, 8, 9, and 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Munoz whose telephone number is 703-305-4224. The examiner can normally be reached on Monday-Friday 8:30a.m-4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9313 for regular communications and 703-872-9313 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

GM
September 12, 2003

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800